PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference RL.P52773WO	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/EP2004/051139	International filing date *(day/month/year)* 16.06.2004	Priority date *(day/month/year)* 19.06.2003
International Patent Classification (IPC) or national classification and IPC H04L29/06, H04Q7/22, H04L12/64		
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1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 4 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
06.04.2005	22.08.2005
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Pérez, M Telephone No. +31 70 340-4178

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/051139

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages	
1-14	as originally filed
Claims, Numbers	
1-20	filed with telefax on 04.08.2005
Drawings, Sheets	
1/5-5/5	as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-20
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-19
	No:	Claims	20
Industrial applicability (IA)	Yes:	Claims	1-20
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following document:

D1: US 2003/027569 A1 (EJZAK RICHARD PAUL) 6 February 2003 (2003-02-06)

2. The subject-matter of claims 1-19 meets the requirement of PCT regarding novelty and inventive step. The reasons being as follows:

2.1. The document D1 shows (the references in parentheses applying to this document):

A method of setting up a call between first and second nodes of a communication system (fig. 5), said call extending across a circuit switched access network available to the first node and a packet switched backbone network, the networks being interconnected by at least one Media Gateway (fig. 1), the method comprising : 1) sending a call initiation message from the first node to the second node via a control node over a packet switched access network available to the first node (paragraph 65); 2) at the control node, obtaining the identity of a Media Gateway Control Function (paragraph 34); and 3) establish a circuit switched call between the first node and a Media Gateway (fig. 1 and paragraph 46-47).

The subject-matter of claim 1 differs from this known D1 is that in claim 1, the Media Gateway Control Function MGCF selected, controls the Media Gateway which will terminate the circuit switching call, i.e. the Media Gateway controlled by the MGCF will be the one used to establish the call in the circuit switched network (it will be the same media gateway controlled by the MSC), so there will be only gateway between the circuit switched domain and the packet switched domain. In D1, it is clear that the Media Gateway controlled by the MGCF is different from the Media Gateway in the circuit switched network, controlled by the MSC (see fig. 1 and 2) and, consequently, there will be at least two media gateways at the originating side (see fig. 2).

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

2.2. The problem to be solved by the present invention may be regarded as: In a hybrid circuit switched (CS)-packet switched (PS) telecommunication network, how to make the network operation as efficient as possible, minimizing the number of media gateways used in the connection.

Solution: In the present application, the call is established using PS addressing, then a CS called is established in the originating and terminating side, and the PS and CS legs of the communication are associated. The MGCF selected during the packet switched call initiation, controls the Media Gateway which will be used later to establish the circuit switched call in the originating side, avoiding that a second media gateway should be introduced in the call path (see page 12, lines 4-5 of the present application).
The solution is considered as involving an inventive step (Article 33 (3) PCT) because, neither document D1, nor any of the documents cited in the search reports disclosed or suggest this feature of selecting the MGCF taking into account the Media Gateway used in the circuit switched network at the originating side. Hence, none of the documents of the prior art either single or in combination, renders obvious the subject-matter of claim 1.
Consequently, **the subject-matter of claim 1 is considered as involving an inventive step (Article 33 (3) PCT).**

2.3. Independent claim 19 appears to relate effectively to the same subject-matter of claim 1, adding some additional features. Consequently, the same reasoning of the above paragraphs applies to **the subject-matter of claim 19 which is considered, therefore, new and involving an inventive step (Article 33 (3) and (3) PCT).**

2.4. Claims 2-18 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

3. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 20 does not involve an inventive step in the sense of Article 33(3) PCT.

3.1. Document D1 shows (the references in parentheses applying to this document):

A method of operating a Media Gateway Control Function arranged in use to control

a Media Gateway which provides a user plane interface between a circuit switched network and a packet switched backbone network (paragraph 36), the method comprising : receiving a SIP INVITE message from a client terminal via a Serving Call State Control Function of an IP Multimedia Subsystem (paragraph 65); in response to receipt of said message, selecting a call back telephone number from a pool of numbers allocated to the Media Gateway Control Function (paragraph 102-103); sending the selected number and answering a subsequent call to the selected number (paragraph 103) and receiving the identity of the Media Gateway which will terminate the circuit switched call for the client terminal, as part of the call set-up procedure (this feature is implicitly disclosed, because as disclosed in fig. 2 of document D1, the Media Gateway controlled by the MGCF is communicating with the media Gateway which terminates the circuit switched call for the mobile terminal, so the MGCF must know the identity of this Media Gateway).

The difference between the subject-matter of claim 20 and that of D1, is that in claim 20 the number is sent to the client terminal and in D1 is only mentioned that the number is sent to the GMSC.
But the feature of sending the number to the client terminal is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill.

Consequently, the subject-matter of claim 20 does not involve an inventive step (Article 33(3) PCT).

Re Item VIII
Certain observations on the international application

As stated in the above paragraph 2, the problem solved by the present invention is how to make the network operation as efficient as possible, minimizing the number of media gateways used in the connection. This problem is solved by the feature of selecting a MGCF which controls the Media Gateway which will terminate the circuit switching call from the client terminal and which will be the only Media Gateway on the initiating side of the call, so this feature is essential for the definition of the invention.

Since independent claim 20 does not contain these features, it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

Claims

1. A method of setting up a call between first and second nodes of a communication system, said call extending across a circuit switched access network available to the first node and a packet switched backbone network, the networks being interconnected by at least one Media Gateway, the method comprising:

1) sending a call initiation message from the first node to the second node via a control node over a packet switched access network available to the first node;

2) at the control node, obtaining from a Home Subscriber Server the identity of a Media Gateway Control Function controlling that Media Gateway which will terminate the circuit switched call for the first node and which will be the only Media Gateway on the initiating side of the call; and

3) using the identity received at the control node to establish a circuit switched call between the first node and said Media Gateway.

2. A method according to claim 1 and comprising:

4) sending from the control node to the first node over the packet switched access network, a circuit switched access number associated with the identified Media Gateway Control Function;

5) calling said access number from the first node, and as part of the call set-up procedure communicating the identity of the Media Gateway selected to terminate the call to the Media Gateway Control Function;

6) terminating the circuit switched call at the selected Media Gateway; and

7) sending an update message from the first node to the second node over the packet switched access network, the Media Gateway Control Function incorporating into the update message an IP address of said selected Media Gateway.

3. A method according to claim 2, wherein the protocol used to set-up the session is SIP and said control node is a Serving Call State Control Function node located within the IP Multimedia Subsystem.

4. A method according to claim 3, wherein said call initiation message is a SIP INVITE message.

5. A method according to claim 3 or 4, wherein said call initiation message is sent from the Serving Call State Control Function node to said second node via the Media Gateway Control Function, following identification of the Media Gateway Control Function by the Serving Call State Control Function.

6. A method according to claim any one of claims 3 to 5, said step of signalling an access number to said first node comprising, following receipt of the call initiation message at the Media Gateway Control Function, sending from the Media Gateway Control Function to said first node, via the Serving Call State Control Function, a SIP message containing the access number.

7. A method according to claim 6, said step of calling said access number from the first node being carried out automatically at the first node following receipt at that node of the SIP message.

8. A method according to claim 6 or 7, wherein said SIP message containing the access number is a SIP REFER message.

9. A method according to any one of claims 3 to 8, said update message being a SIP UPDATE message.

10. A method according to claim 2, wherein both the first and second nodes are attached to respective circuit switched and packet switched access networks, the method comprising carrying out steps 2) to 6) for the second node to establish a circuit switched call at the terminating side between the second node and a Media Gateway selected for that node, and carrying out step 7) to signal to the initiating side the IP address of that Media Gateway.

11. A method according to any one of claims 1 to 9, wherein said second node has access to only a packet switched access network, and said Media Gateway exchanges packets directly with the second node.

12. A method according to any one of the preceding claims, wherein one or both of the first and second nodes are user terminals.

13. A method according to any one of the preceding claims, wherein said step of identifying a Media Gateway Control Function at the control node comprises receiving from a Home Subscriber Server either the identity of the switch to which the first node is currently attached or the identity of the Media Gateway Control Function associated with that switch..

14. A method according to claim 3, wherein the identity information is sent by the Home Subscriber Server automatically following SIP registration of the first node.

15. A method according to any one of the preceding claims, wherein the communications system is a cellular radio communications system.

16. A method according to claim 15, wherein the identity is received in response to a query sent to the Home Subscriber Server by the control node, the query being triggered by receipt of the call initiation message.

17. A method according to claim 16, wherein the Home Subscriber Server receives Mobile Switching Centre location data for subscribers from a Home Location Register.

18. A method according to any one of claims 15 or 17, wherein the setting up of the call to the Media Gateway is controlled by a Mobile Switching Centre, the Mobile Switching Centre sending an Initial Address Message to the Media Gateway Control Function and that message containing the identity of the selected Media Gateway.

19. A method of operating a Serving Call State Control Function of an IP Multimedia Subsystem, the method comprising:

receiving a SIP INVITE message from a client terminal over a packet switched access network, the INVITE being identified as requiring the setting up of a circuit switched call from the client terminal;

sending a query to a Home Subscriber Server in order to identify a Media Gateway Control Function which controls that Media Gateway which will be selected to terminate the circuit switched call from the client terminal and which will be the only Media Gateway on the initiating side of the call; and

relaying a SIP message from the Media Gateway Control Function to the client terminal, the SIP message containing a number associated with the Media Gateway Control Function and to which the client terminal should call to set up the circuit switched call.

20. A method of operating a Media Gateway Control Function arranged in use to control a Media Gateway which provides a user plane interface between a circuit switched network and a packet switched backbone network, the method comprising:

receiving a SIP INVITE message from a client terminal via a Serving Call State Control Function of an IP Multimedia Subsystem;

in response to receipt of said message, selecting a call back telephone number from a pool of numbers allocated to the Media Gateway Control Function;

sending the selected number to the client terminal in a SIP message; and

answering a subsequent call from the client terminal to the selected number including receiving the identity of the Media Gateway which will terminate the circuit switched call for the client terminal, as part of the call set-up procedure.